

SEQUENCE LISTING

<110> ROMOND, Pierre-Charles
<110> RENAUD, Michel
<110> ALRIC, Monique
<110> MEINIEL, Olivier
<110> BALLUT, Lionel
<120> METHOD FOR DETECTING MICRO-ORGANISMS
<130> 344 292 - US
<150> PCT/FR 01/02 371
<151> 2001-07-20
<150> FR 00/09 600
<151> 2000-07-21
<150> FR 00/12 524
<151> 2000-10-02
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<400> 34
ggngayggna cnacnacngc nactnt

26

<210> 35
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Primer (UNI-ADEG 2)

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<400> 35
ggngayggna cnacnacntg ntcnnt

26

<210> 36
<211> 26
<212> DNA
<213> Artificial sequence

<220>
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for detecting enterobacteria (ENT-BNEW).

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<222> (18)
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<220>
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<222> (24)
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26

22

<210> 37
<211> 26
<212> DNA
<213> Artificial sequence

<220>
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for detecting clostridia (CLO-BNEW2)

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atnarrccay twggwgaymg ngtwgt

26

<210> 38
<211> 26
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<220>
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for detecting bifidobacteria (BIF-BNEW).

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<220>
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<400> 38
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26

<210> 39
<211> 26
<212> DNA
<213> Artificial sequence

<220>
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23

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<400> 39
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26

<210> 40
 <211> 26
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Description of artificial sequence: Consensus sequence
 for detecting Bifidobacterium and Mycobacterium (BIF-BNEW2).

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<400> 40
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26

<210> 41
 <211> 26
 <212> DNA
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<220>

24

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for detecting Helicobacter (HEL-BNEW).

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<400> 41

ntncanccnt tnggnganag ngtnnt

26

<210> 42

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: Consensus sequence
for detecting Campylobacter (CAM-BNEW).

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<222> (24)
<223> n = a, g, c or t

<400> 42
ntncancnt tngqnaancg ngtnct

26

<210> 43
<211> 26
<212> DNA
<213> Artificial sequence

<220>
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for detecting bacteroids (BACT-BNEW).

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 <223> n = a, g, c or t

<400> 43
 ntnaancnt tngcngancg ngtnct

26

<210> 44
 <211> 26
 <212> DNA
 <213> Artificial sequence

<220>
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 for detecting Chlamydia (CHLA-BNEW).

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<220>

<221> misc_feature

<222> (9)

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<222> (12)

<223> n = a, g, c or t

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<223> n = a, g, c or t

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<221> misc_feature

<222> (24)

<223> n = a, g, c or t

<400> 44

ntnaancnt tngnganag natntt

26

<210> 45

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: Consensus sequence
for detecting Mycoplasma (MYCP-BNEW).

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<220>

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<400> 45

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26

<210> 46

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: Consensus sequence
for detecting Staphylococcus (STA-BNEW).

<220>

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<220>

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<222> (12)

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29

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<220>

<221> misc_feature

<222> (21)

<223> n = a, g, c or t

<220>

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<222> (24)

<223> n = a, g, c or t

<400> 46

ntnaaacnn tnggnaancg ngtnat

26

<210> 47

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: Consensus sequence
for detecting Lactococcus and Streptococcus (LACC-BNEW).

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<222> (9)

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<400> 47

ttgaaacnt tagnggraycg ygtrst

26

<210> 48

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: Consensus sequence
for detecting Lactobacillus and Bacillus (LACB-BNEW).

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<400> 48
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26

<210> 49
<211> 26
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<213> Artificial sequence

<220>
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for detecting Clostridium (CLO-BNEW3).

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<400> 49
atnanaccan tnggngacag ngtngt

26

<210> 50
<211> 26
<212> DNA
<213> Artificial sequence

<220>
<223> Description of artificial sequence: Consensus sequence
for detecting Enterobacteriaceae, Pasteurella, Haemophilus
(ENT-BNEW2).

<220>

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26

<210> 51
<211> 26
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<220>
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for detecting Neisseria, Legionella (LEG-BNEW).

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<220>

32

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<220>
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<400> 51
ntnccgncnt tncangancg ngtngt

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26

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<210> 52
<211> 26
<212> DNA
<213> Artificial sequence

<220>
<223> Description of artificial sequence: Consensus sequence
      for detecting Aeromonas and Bordetella (AER-BNEW).

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<400> 52
ntnccgncnc tncanganccg ngtat

26

<210> 53
<211> 26
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<213> Artificial sequence

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34

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26

<210> 54
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<400> 54
aaygcngayt tygayggnga ysarat

26

<210> 55
<211> 26
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35

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26

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<211> 26

<212> DNA

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<211> 26

<212> DNA

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36

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26

<210> 58
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ggnggnntnm gnttyggnga ratgga

26

<210> 59
<211> 26
<212> DNA
<213> Artificial sequence

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<223> n = a, g, c or t/u

<220>
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<222> (18)
<223> n = a, g, c or t/u

<400> 59
aaygcnqayt tygayggnga ycarat

26

37

<210> 60
<211> 26
<212> DNA
<213> Artificial sequence

<220>
<223> Description of artificial sequence: Primer

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<223> n = a, g, c or t/u

<220>
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<400> 60
aaygcngayt tygayggnga ratggc

26

<210> 61
<211> 26
<212> DNA
<213> Artificial sequence

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26

<210> 62
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<212> DNA
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<220>
<223> Description of artificial sequence: Primer

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<223> n = a, g, c or t/u

<220>
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<222> (21)
<223> n = a, g, c or t/u

<400> 62

38

atytsttcnc crlcraarlc ngrlll

26

<210> 63

<211> 333

<212> DNA

<213> *Lactobacillus reuteri*

<400> 63

cttgtaagg	aattacaagc	attaggtctt	gatatgaagg	ttcttgatgg	taacaacaag	60
gaaattcagt	taaagaacat	ggacgaagat	gatgatgaag	ttgtaaatgt	tgatgcatta	120
gctaaatatg	cagaagaaca	taaaacagac	gataagaaga	acgaagaaga	aaacaagtct	180
gaagcaactt	caacaactac	cgatgacaaa	actaatcaaa	attaatattt	aggttgctac	240
ggtttactga	aaqaaqaaq	aacatccttt	gattgatgtc	aataaatttg	aaagtatgca	300
gacgqctctg	gcattctccag	ataagatccg	lag			333

<210> 64

<211> 338

<212> DNA

<213> *Bacillus subtilis*

<400> 64

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gaaattgaac	ttcgtgatat	ggatgaagat	tcaagtgaac	acttaaacat	tgattcattg	120
tcacgtatgg	cagaagaaca	agaaaagaag	aagttagccg	aagaaactgg	aaaatcagaa	180
gataagaaag	aaaacaagaa	agatgcagat	aagctagtag	ctcctgcaga	tgaatctgac	240
gacgaagttt	ctaaatagta	ggagggttaa	cttttgatcg	acgtaaataa	atttgaaagt	300
atgcaaattg	gtcttgcatc	acctaacaag	atcagaag			338

<210> 65

<211> 329

<212> DNA

<213> *Lactobacillus gasei*

<400> 65

cttgtaagg	aacttcaatc	cttaggtttg	gatattaaag	tcttagatat	ggaccacaag	60
gaaattgaat	tacgtgacat	ggatgatgat	tctaattgatc	acttcaacat	tgacacttta	120
tctaagcttg	ctgaacaaca	agaaaagaag	aagttagccg	aagaagctgc	aaagaaagat	180
gataagtcag	ccgaacctgt	agatcagagt	gattcttcaa	cttcactctga	tgataaggtt	240
tctaagtaat	aggaggttaa	acttttgatc	gacgtaaata	agtttgaaag	tatgcaaatt	300
ggtttggtctt	ctccaaacaa	gatcaqaaq				329

<210> 66

<211> 296

<212> DNA

<213> *Lactobacillus paracasei*

<400> 66

cttgtaagg	aattgcaagc	actgggtctg	gatatgaagg	tccttggcgc	ggataaaaaa	60
gaaattgaac	tgccggacat	ggacgacgac	gaggatgata	ttgtttctgt	cgatgccttg	120
gcgaagtttg	ctgctcagca	ggaagaaaag	aaggctcacg	aagccgcagc	acaagcaact	180
gacggtaagt	ctgccaacag	taccgacgat	aagaaatagg	aggttagccc	tttgattgat	240
gtcaataagt	ttgaaagtat	gcaaatcggc	ttagcctcgc	cagataaaat	ccgtag	296

<210> 67

<211> 386

<212> DNA

<213> *Lactococcus lactis*

<400> 67

39

ttgggttaaag	agttacaatc	acttggtcctt	gatatgaaa	tccllgatgc	tgaccgtaal	60
gttcttgact	tacgtgaatt	ggatgaagat	gaagtaatga	ctcgtccaga	taatacagaa	120
attactcctg	aaatgcttga	agcacaggaa	gctattgttg	cacagcaga	agctgaagaa	180
gaagctttga	ttaacgctga	tactgaaaaa	taagaltttg	taattaatat	tttgagatag	240
atttactgac	aaaaatttct	gtcagtaaat	ctctaattctc	ataatcgtct	agcgttaaat	300
ttattagaag	tggagaaaga	attggttgat	gtaaataaat	ttgagagtat	gcgtattggt	360
atcgcatctc	cacaaaaaat	tcgtta				386

<210> 68

<211> 344

<212> DNA

<213> *Streptococcus pyogenes*

<400> 68

cttgtaaaaag	aattgcaatc	gcttggtcctt	gatatgcgtg	tgcttgacga	ggatgataat	60
gaagtggaaac	ttcgtgatct	tgatgaaggt	gaagacgatg	acatttatga	tggttgacgat	120
ctcgagaagg	cacgtgaaaa	acaagctcaa	gaaactcaag	aagtttctga	aacaactgac	180
gaaaaataag	caatcaattc	ttattaaata	attattttact	ggtctggggc	aaaggcccca	240
ggaactggta	aagtcataca	aggcagaaag	gtaaaactag	tggttgacgt	aaatcgtttt	300
aaaagtatgc	aaatcacatt	agcctcacca	agtaaggtcc	gttc		344

<210> 69

<211> 318

<212> DNA

<213> *Lactobacillus helveticus*

<400> 69

llaatcaaaag	aacttcaaaag	cttaggtatg	gatgtcaaaa	tcctttctgg	tgatgaagaa	60
gaaatagaaa	tgagagattt	agaagacgaa	gaagatgcga	aacaagctga	cggcctggca	120
ttatcaggtg	atgaagagcc	ggaagaaaca	gcatctgcag	acgttgaaacg	cgatgtagta	180
acaaaagaat	aatctctagt	tataaaggca	agtgcacatcg	gttaatccga	agataaaaag	240
ggaggtaggc	cccttgctag	atgtgaacaa	ttttgagtat	atgaacatcg	gtcttgcttc	300
accagataaa	atccgttc					318

<210> 70

<211> 318

<212> DNA

<213> *Bacillus subtilis*

<400> 70

tteatcaaaag	aacttcaaaag	cttaggtatg	gatgtcaaaa	tcctttctgg	tgatgaagaa	60
gaaatagaaa	tgagagattt	agaagacgaa	gaagatgcga	aacaagctga	cggcctggca	120
ttatcaggtg	atgaagagcc	ggaagaaaca	gcatctgcag	acgttgaaacg	cgatgtagta	180
acaaaagaat	aatctctagt	tataaaggca	agtgcacatcg	gttaatccga	agataaaaag	240
ggaggtaggc	cccttgctag	atgtgaacaa	ttttgagtat	atgaacatcg	gtcttgcttc	300
accagataaa	atccgttc					318

<210> 71

<211> 304

<212> DNA

<213> *Bacillus halodurans*

<400> 71

cttataaaaag	agctacagtc	tctcggtatg	gacgtcaaga	tgctatcaag	tactgaggaa	60
gagattgaaa	tgaaagagct	tgatgatgag	gatgaacaag	caagcgacaa	attgaacttg	120
aatattgatt	caacagaatc	aaatgtttta	tcagctgaaa	ggggagcagt	cccctttcac	180
ttgctcttta	aattcgcttac	ctgcttttgg	acatggaaat	cataaggagg	gttggccctt	240
tgatagacgt	aaacaatttt	gagtacatga	aaattgggtct	tgcttcacca	aataaaaattc	300
gttc						304

40

<210> 72
 <211> 363
 <212> DNA
 <213> *Staphylococcus aureus*

<400> 72
 ttgatgaaag aattacaaag tttaggltta gatgtaaaaq ttatggatga gcaagataat 60
 gaaatcgaaa tgacagacgt tgatgacgat gatgtttag aacgcaaagt agattttacaa 120
 caaaatgatg ctctgaaac acaaaaagaa gttactgatt aatacgaat ttacaaaaca 180
 ggcaaaaaga tactaagclg aattttattg atgattcagt ttagtacttt aagccatttt 240
 aaataaatgc aaatcaatca aatagcacag ctaatctaaa ttgaaggagg taggctcctt 300
 gattgatgta aataatttcc attatatgaa aataaggattg qcttcacctg aaaaaatccg 360
 ttc 363

<210> 73
 <211> 352
 <212> DNA
 <213> *Clostridium spiroforme*

<400> 73
 ttaaagaaag agttacaagc acttgcatg gatgtacgtt tgtagatga aaatgataat 60
 gaagttgata tgcgtaatat tgaagaagag gaacatcgtt tcccgogtag cattgataaa 120
 gatgaagtaa ttgaaactcc aaaaactgat gatgaagttt ccgaagaaat tactgaagat 180
 gatttaaatg tagaagaaat tgacgtatgt gaagaagata actttgagga caatgacttc 240
 gaagacaatg atattgaaga aagtgaatca ttataggagg aattacgatg gcaaatacaa 300
 ataaattctc agcgattcaa attggtttag ctgcgcttca gaagattcgc ga 352

<210> 74
 <211> 358
 <212> DNA
 <213> *Clostridium leptum*

<400> 74
 ctcatataag agcttcagtc cctgggcctg gatgtaaaag tgctggataa ggatgagcag 60
 gagatcgacc taaagcagaa ctttgacgac gatgacgata tcggcttgaa cgacggcggc 120
 accattcttg aggaggatga agtcatgacc tccatggatg gctacacccct ggaggacgat 180
 ccggacgata acaacatggt tgacgattec ggcttttttg acgaagacgg agacgatcct 240
 ttggattttg attccattgc aagtgatatt cgtgaagaat aaggaggggc gataggatgg 300
 agtttaacgt ttttgagtca attaaaatcg gactggcctc tccggataaa attcgaga 358

<210> 75
 <211> 376
 <212> DNA
 <213> *Clostridium nexile*

<400> 75
 ctcttgaaag aacttcagtc actgggactt gacgtgagag tattgctgta agatcagaca 60
 gaagttgaga ttatggagac aatcgattac ggtgaaacag atttacattc aattattgaa 120
 ggagacagaa gatacaattc tgagaatgaa tcttatggag aacatgggtt cagtcagcag 180
 gaatttgacg gcgaggaact tgtggatgta gaggaagatg aatttgatga accggatgat 240
 atcgattttg acgatatggt agacgaagaa taggaggatt gccataatg ccagtaacaa 300
 ataataaacc agcataccag ccgatgactt ttgatgcatg caaaatcggt ttggcgtcac 360
 ctgaaaaaat cttgga 376

<210> 76
 <211> 391
 <212> DNA

<213> Ruminococcus hydrogenotrophicus

<400> 76

ctcttaaaag	aacttcagtc	cctgggtctg	gacgtgagag	tcctcaacga	agaccagacc	60
gaggtggaga	tcattggagag	cgtggattac	ggtgatacag	atctgcactc	catcattgag	120
ggagatcgtc	atcgttcgca	ggatgagtc	tacggagcaa	tgggatatac	gaagcagga	180
ttttccggtg	aagagctggg	agacatcgac	gagagtgaag	acgacagcga	agacgaagat	240
gaagatttga	ttgaattgga	agattctctt	gacagagaag	agtagaaagg	ggtaagaaac	300
aatggcgaga	aatgaacaac	aatgaaacct	atcagccaat	gactttcgat	gccatcaaaa	360
tcggactggc	gtcccctgag	aaaatcagag	a			391

<210> 77

<211> 182

<212> DNA

<213> Chlamydia muridarum

<400> 77

ttgattaaag	aaatgcaagg	tctagggctc	gatgttcgcc	ctatggtagt	agatgcttaa	60
aaaacacttg	ttggagataa	gttaatgttc	aaagaagggt	ctcgagacga	tgcagcccta	120
gcaaaagaag	ggctgtttga	taagttagaa	attgggattg	cttcagatgt	gactattcgc	180
ga						182

<210> 78

<211> 182

<212> DNA

<213> Chlamydia trachomatis

<400> 78

ttgattaaag	aaatgcaagg	tctagggctt	gatgttcgcc	ctatggtagt	agatgcttaa	60
aaaacacttg	ttggagagaa	gttaatgttc	agagaagggt	ctcgagacga	tgcagcccta	120
gtaaaagaag	ggctgtttga	taagttagaa	attgggattg	cttcagatgt	gactattcgc	180
ga						182

<210> 79

<211> 181

<212> DNA

<213> Chlamydomphila pneumoniae

<400> 79

ctaattaaag	agatgcaggg	tctaggactt	gatgttcgtc	ctatggtcgt	agacgcttaa	60
aaaatgacgt	tttgagagaa	ataatgttcg	gagaaaattc	tcgagacatt	ggagttcttt	120
ctaaagaagg	actatttgat	aaattagaga	taggcatagc	ttcagatatt	acaattcgtg	180
a						181

<210> 80

<211> 181

<212> DNA

<213> Chlamydomphila pneumoniae

<400> 80

ctaattaaag	agatgcaggg	tctaggactt	gatgttcgtc	ctatggtcgt	agacgcttaa	60
aaaatgacgt	tttgagagaa	ataatgttcg	gagaaaattc	tcgagacatt	ggagttcttt	120
ctaaagaagg	actatttgat	aaallagaga	taggcatagc	ttcagatatt	acaattcgtg	180
a						181

<210> 81

<211> 181

<212> DNA

42

<213> Chlamydomophila pneumoniae

<400> 81

ctaattaaag agatgcaggg tctaggactt gatgttcgtc ctatggtcgt agacgcttaa	60
aaaatgacgt tttggagaaa ataatgttcg gagaaaattc tcgagacatt ggagttcttt	120
ctaaagaagg actatttgat aaattagaga taggcatagc ttcagatatt acaattcgtg	180
a	181

<210> 82

<211> 225

<212> DNA

<213> Klebsiella pneumoniae

<400> 82

ttgttgaaaq agattcgttc gctgggtatc aacatcgaac tggaagacga gtaattctcg	60
ctcaaacagg tcaactgctgt cgggttaaaa cccggcagcg gattgtgcta actccgacgg	120
gagcaaatcc gtgaaagatt tattaagtt tctgaaagcg cagactaaaa ccgaagagtt	180
tgatgcgac aaaattgctc tggcttcgcc agacatgac cgttc	225

<210> 83

<211> 225

<212> DNA

<213> Escherichia coli

<400> 83

ttgttgaaaq agattcgttc gctgggtatc aacatcgaac tggaagacga gtaattctcg	60
ctcaaacagg tcaactgctgt cgggttaaaa cccggcagcg gattgtgcta actccgacgg	120
gagcaaatcc gtgaaagatt tattaagtt tctgaaagcg cagactaaaa ccgaagagtt	180
tgatgcgac aaaattgctc tggcttcgcc agacatgac cgttc	225

<210> 84

<211> 225

<212> DNA

<213> Escherichia coli

<400> 84

ttgttgaaaq agattcgttc gctgggtatc aacatcgaac tggaagacga gtaattctcg	60
ctcaaacagg tcaactgctgt cgggttaaaa cccggcagcg gattgtgcta actccgacgg	120
gagcaaatcc gtgaaagatt tattaagtt tctgaaagcg cagactaaaa ccgaagagtt	180
tgatgcgac aaaattgctc tggcttcgcc agacatgac cgttc	225

<210> 85

<211> 225

<212> DNA

<213> Escherichia coli

<400> 85

ttgttgaaaq agattcgttc gctgggtatc aacatcgaac tggaagacga gtaattctcg	60
ctcaaacagg tcaactgctgt cgggttaaaa cccggcagcg gattgtgcta actccgacgg	120
gagcaaatcc gtgaaagatt tattaagtt tctgaaagcg cagactaaaa ccgaagagtt	180
tgatgcgac aaaattgctc tggcttcgcc agacatgac cgttc	225

<210> 86

<211> 225

<212> DNA

<213> Escherichia coli

<400> 86

43

ttgttgaaag	agattcgttc	gctgggtatc	aacatcgaac	tggaagacga	glaallclcg	60
ctcaaacagg	tcactgctgt	cgggglaaaa	cccggcagcg	gallgtgcta	actccgacgg	120
gagcaaattcc	gtgaaagatt	tattaaaagt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgalc	aaaattgctc	tggtctcgcc	agacatgata	cgttc		225

<210> 87
 <211> 225
 <212> DNA
 <213> *Salmonella typhimurium*

ctgttgaaag	agatccgctc	gctgggcata	aacatcgaac	tggaagacga	gtaattctcg	60
ctcaaacagg	tcactgggtg	cggggtaaaa	cccgcaccca	gattgtgcta	actccgacgg	120
gagcaaattcc	gtgaaagatt	tattaaaagt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgata	aaaattgctc	tggtctcgcc	agacatgata	cgttc		225

<210> 88
 <211> 225
 <212> DNA
 <213> *Enterobacter cloacae*

ctgttgaaag	agattcgttc	gctgggtatc	aacatcgaac	tggaagacga	gtaattctcg	60
ctcaaacagg	tcactgggtg	cgggtaaac	cccgcacccg	gattgtgcta	actccgacgg	120
gagcaaattcc	gtgaaagatt	tattaaaagt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgata	aaaattgctc	tggtctcgcc	agacatgata	cgttc		225

<210> 89
 <211> 225
 <212> DNA
 <213> *Citrobacter freundii*

ctgttgaaag	agattcgttc	gctgggtatc	aacatcgagc	tggaagacga	gtaactctcg	60
atcaaacagg	tcactgggtg	tggtgtaata	gccagcgcca	gattgtgcta	actccgacgg	120
gagcaaattcc	gtgaaagatt	tattaaaagt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgata	aaaattgctc	tggtctcgcc	agacatgata	cgttc		225

<210> 90
 <211> 225
 <212> DNA
 <213> *Klebsiella oxytoca*

ttgttgaaag	agattcgttc	gctgggcata	aacatcgaac	tggaagacga	gtaactctcg	60
ctcaaacagg	tcactgggtg	cggggtaaga	cccgcgcca	gattgtgcta	actccgacgg	120
gagcaaattcc	gtgaaagatt	tattaaaagt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgata	aaaattgctc	tggtctcgcc	agacatgata	cgttc		225

<210> 91
 <211> 267
 <212> DNA
 <213> *Serratia liquefaciens*

ctgttgaaag	aaatccgctc	gctcgggtatc	aacatcgaac	tggaagacga	gtaatcgttt	60
ttccagctca	ggctcccggc	cttagggagc	ctgagggtgg	ttgttcaggt	cacacgggtg	120
cgcgatttgt	cagcgtgcac	ccaacagggt	taactccgac	aggagccaat	ccgtgaaaga	180

44

cttattgaag tttctgaaag cgcaaaactaa gaccgaagag tttgatgcga tcaagattgc 240
tctggcatcg ccagacatga lccyllc 267

<210> 92
<211> 267
<212> DNA
<213> *Serratia marcescens*

<400> 92
ctgttgaaag aaatccgctc gctcggcatc aacatcgaac tggaagacga gtaatcgtca 60
tgccggctca ggctccccgc ctaagggaqc ctgagggtgg ttgttcaggt cacacgggta 120
cctactgcgg ttgtgggtac ccaacagggt taactccgac aggagccaat ccgtgaaaqa 180
cttattgaag tttctgaaag cgcataactaa gaccgaagag tttgatgcga tcaagattgc 240
tctggcctcg ccaqacatga tccgttc 267

<210> 93
<211> 257
<212> DNA
<213> *Morganella morganii*

<400> 93
ttgttgaaag aaatccgttc cctcgggtatc aatctcgagc tggaagacga gtaattaccg 60
ttgtggctgc ccgtggtaca cgggcagcac cagttaattct gggttaaggg acaaacagac 120
gaccgtttgt ctcacaggtc taactccgac aggagccatt tctgtgaaaga cttattaaag 180
tttctgaaag cgcaaaacaa gaccgaagag tttgatgcga tcaaaattgg tctggcctca 240
cctgacatga ttcgttc 257

<210> 94
<211> 271
<212> DNA
<213> *Proteus mirabilis*

<400> 94
ttgttgaaag agatccgttc actgggtatc aacatcgaat tggaagacga ataacgtatt 60
ccatgaaagc agactgctaa atatggcagt ctgctaaaca gtgactacac tgggttaaaag 120
gggtgaatga caggggtcat ttgcctggca ggtctaactc cgacaggagc catttcgtga 180
aagacttatt aaagtctctg aaagcgcaaa ccaagaccga agagtctgat gcgatcaaaa 240
ttgctctggc atcacctgat atgatccgtt c 271

<210> 95
<211> 253
<212> DNA
<213> *VIBRIO CHOLERA*

<400> 95
ctgttgaaag agatccgttc gctcgggtatc aacatcgaat tagaagacga ataataaacc 60
ctaagggttc cccgcaaggg gaagcctacc gggttcggta ggaagggtgct cgttgccaat 120
cgcagcgagt tccttttaac tccttacagg agctgaatgt gaaagactta ttaaactttc 180
taaaagcaca gcataagacc gaagaatttg atgcatcaaa aatcgggtctg gcttcaccag 240
acatgatccg ttc 253

<210> 96
<211> 214
<212> DNA
<213> *Pseudomonas aeruginosa*

<400> 96
ctgatcaaag agatccgttc gctcggcatc gacatcgaac tggaaccga ataacacgtg 60

45

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acgctaagacg gtgcggctgg lcaagggccg lcgacccggg tccgtgagga ggaaaggcct 120
tgaaagactt gcllaalclg ttgaaaaacc agggtcacaaat cgaagagttc gatgccatcc 180
gtattggcct ggcttcgccc gagatgatcc gtcc 214

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<210> 97
 <211> 214
 <212> DNA
 <213> *Pseudomonas aeruginosa*

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<400> 97
ctgatcaaag agatccgttc gtcgggcacg gacatcgaaac tggaaaccga ataacacgtg 60
acgctaagacg gtgcggctgg tcaaaqcccq tgcacccggg tccgtgagga ggaaaggcct 120
tgaaagactt qcttaaatctg ttgaaaaacc agggtcacaaat cgaagagttc gatgccatcc 180
gtattggcct ggcttcgccc gagatgatcc gtcc 214

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<210> 98
 <211> 212
 <212> DNA
 <213> *Pseudomonas putida*

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<400> 98
ttgatcaaag agatccgttc gtcgggtatc gatatcgatc tggaaaccga ataacacgtg 60
acgcaagagg gagtggggca ggtaattgtg ctccctgtc cggcaggagg aaaggccttg 120
aaagacctac tgattttgtc gaaaaaccag ggtcaagtgc aagagttcga cgccatccgc 180
atcgggtctg cgtcgccctga aatgatccgt tc 212

```

<210> 99
 <211> 228
 <212> DNA
 <213> *Shewanella violacea*

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<400> 99
ttgttgaagg aaatccgttc actcgggtatt aatatcgagt tggatcaaga ctaaaattaa 60
cttaggttaa ttgggcaata aattggtgtc ctgcattagc ggggcacccg gtttactcct 120
tcaggagaga aacgtgaaag acttattaaa gtttctgaaa cagcaaaagca agaccgaaga 180
atttaacggt atcaagatcg gactagcgtc accagatctg atccgctc 228

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<210> 100
 <211> 393
 <212> DNA
 <213> *Haemophilus influenzae*

```

<400> 100
attatgaaag aaatccgctc acttgggttta aatatcgagt tagacgaaga gtaatcactg 60
attactataa atgggtgctga tcccttggtt ccacccgttt acggggggagc tggcgcgaag 120
actgaggggg gatttatatc ctaagccccc ttccgccctt cgggcacctt ccctcgcaaa 180
gcaggggaaag gcaagaggaa caacaacata agatttgaaa tcgccgaagt gcgggtcaaaa 240
ttctccgaaa tttttaaccg cactttaaac cttaactcc gacaggagaa catttgtaga 300
agacttagtt aagtttttaa aagcacaalc aaaaaccagt gaagattttg atgtgattaa 360
aattgggtta gcttccccag atatgatccg ttc 393

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<210> 101
 <211> 262
 <212> DNA
 <213> *Pasteurella multocida*

<400> 101

46

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attatgaaag aaattcgctc gccgggclac aalattgatt tagatgaaga ttaatctgac    60
atcataacca agcttgggtg aaagcaatgt acgcgcaagt gcggtaaaaa tttttaaaat    120
ttcagccgca cttgaataag ttttaactccg acaggagcaa atctgtgaaa gacttaglta    180
agttttttaa agcacaaatca aaaacaagtg aagattttga tgtgatcaaa attggtttag    240
cctcaccgga catgatccgt tc                                     262

```

<210> 102

<211> 306

<212> DNA

<213> *Neisseria meningitidis*

<400> 102

```

ttggtcaaaag aqattcgctc actgggcttg gatatcgatt tggaaacgcta ctgatacggg    60
tttcagacgg cataagggga gclgttctgc aggtatgcgg gccagccgac aatgtttaaa    120
aacgaaatgc cgtctgaaaa cactgtacct ctatccatat cgaaaatccg ccatgaggta    180
aaaatacttc cttcaaggag caaaaatgaa tttgttgaac ttatttaate cgttgcaaac    240
tgccggcatg gaagaagagt ttgatgccat caaaatcggg attgcctctc ccgaaacctat    300
ccgctc                                     306

```

<210> 103

<211> 311

<212> DNA

<213> *Neisseria meningitidis*

<400> 103

```

ttggtcaaaag agattcgctc actgggcttg gatatcgatt tggaaacgcta ctaaacaata    60
gttttcagac gccctttcag ggtcgtctga aaaagtgggt tcagaataag aalgaagcaa    120
tcggcattta gcccgctctga aatcaaaaagt accglllccc aalatcgaaa atccgccatg    180
cggtaaaaaat acttccttca aggagcaaaa atgaatttgt tgaacttatt taatccggtg    240
caaaactgccg gcatggaaga agagtttgat gccattaaaa tcggtattgc ctctcccgaa    300
accatccgct c                                     311

```

<210> 104

<211> 226

<212> DNA

<213> *Buchnera sp*

<400> 104

```

ctttttaaag aaattcggtc attagggatt aatattgaac taqaaaqcqa ataacaaaat    60
tagcaatatt ataaaaatat ttatqtatta tttatttacc ttaaaagttt tactccaacg    120
agagctaacq tgtgaaagat ttactaaaat ttctaaaate ccaaaactaaa aatgaagatt    180
ttqatgctat taaaatctcg ttgcttcac ctgatatgat cagatc                                     226

```

<210> 105

<211> 247

<212> DNA

<213> *Xylella fastidiosa*

<400> 105

```

ctcgtgaaag aaatccgctc cttagcaatt aatattgagt tggaaagataa ctaagatgcg    60
ttgttatgga ttaattcatt tgtttgagg cccagagctc cattgtcctc tgtttccaac    120
tcgtcccgat gcccgatttt cggagaagaa gtatgaaaga tctactcaat ctttttaate    180
agcagcgcca gacattggat lllcgalgcca lcaagattgg ccttgccctg cctgccttga    240
ttagatc                                     247

```

<210> 106

<211> 265

<212> DNA

47

<213> *Caulobacter crescentus*

<400> 106

ctgggtcaagg aaatgcgctc gclcggcctg aacgtcgagc tggagaacag ctgatctgga	60
tctccctcct cgcctgcccc tcttaggaag ggtggcggg gaggggcctc ctttcagccc	120
gctctccctc aagaattttc gcgggaaacc ccgcagaagg aaccaagatg aaccaggaag	180
tcctgaacat cttcaatccg gtccaggccg clccgacctt cgaccagatc cgtatctcgc	240
tcgcctcgcc ggaaaagatc cgctc	265

<210> 107

<211> 325

<212> DNA

<213> *Mezorhizobium loti*

<400> 107

ctcgtcaagg aaatgcgctc tctcggcctc aatgtcgagc tggagaacac caagctcgac	60
gacgcccctg tccggctgcc cgacgcggcc gagtaaggc tacagcgcg cgcacgaagt	120
tgcggcgcg aaaggaaattc gacggccggt ggccgacaaa agatggcgg cgtttgccc	180
gcgactagat gcaagggtt ttcgaggacc ccgaaaagga gaacggcatg aaccaagagg	240
tcctgaatct cttcaatccg caggcgctg cgcagggtgt cgattccatc cggatctcac	300
tggccagccc tgagaagatt ctgtc	325

<210> 108

<211> 311

<212> DNA

<213> *Rickettsia prowasekii*

<400> 108

atgataaaaag aatttagatc tttatgtctc aacgtaaagc ttgaagtaac tccaagtaaa	60
taaagtgtat atatgttgta cataatttgt cttgttgtat aatttaaaaa ttgttattgc	120
aagccaaact aaatgaatgt agtgagccat aatgttattt tgtatttaag ctatggagta	180
acattttaga gtaggagtaa tttttaggga aaagtattta tgagcgtagt taatttttat	240
ggacaattraa gtaatactca acaatttgac cagataagga ttaatatagc cagtctgat	300
caggtacgtt c	311

<210> 109

<211> 188

<212> DNA

<213> *Borrelia burgdorferi*

<400> 109

ctaattqcaag agcttagagg gcttggactt gatttgtcaa tttatgatga tgctgggaat	60
caggttcctt tgacagaaaa agaaagaaga ttgattaata aaagctaggt ttttgaggtt	120
tttatgaaag agataaaaga ttttgaaaga ataaaaatta aaatagcgtc tcccgatcaa	180
attagaaa	188

<210> 110

<211> 197

<212> DNA

<213> *Treponema pallidum*

<400> 110

ttgggtgcagg agctgcgggg acttgcgctc gactttacga tttacgatgc gaagggaag	60
cagattccgc tcactgagcg cgatgaagaa atgacgaata agattggctc taaattttaa	120
gggggtgcagg gaatgaagga tatccgggat tttagacagt tacagataaa gcttgccctc	180
cctgatacca ttcgggc	197

48

<210> 111
 <211> 159
 <212> DNA
 <213> *Campylobacter jejuni*

<400> 111
 ttaaccaatg agcttaaate tcttgcttta gatgttgaga tttttgataa ggatgaagat 60
 aatgagtaaa tttaaagtaa tagaaattaa agaagatgca agacctagag attttgaagc 120
 atttcaacta agacttgcaa gtccctgaaaa aatcaaatc 159

<210> 112
 <211> 161
 <212> DNA
 <213> *Helicobacter pylori*

<400> 112
 ttgactaaag aattgcaatc gctcgctttg gatattaata tttttgggga cgatgtggat 60
 gaggatggag caccctaaacc cattgtcatt aaagaagatg acaggcctaa agacttttagc 120
 tctttccagc tcacactagc tagccctgaa aaaatccatt c 161

<210> 113
 <211> 161
 <212> DNA
 <213> *Helicobacter pylori*

<400> 113
 ttgactaaag aattgcagtc gctcgctttg gatattaata tttttgggga cgatgtggat 60
 gaagatggag cgcctagacc cattatgac aaagaagatg acaggcctaa agacttttagc 120
 tctttccagc tcactctagc tagccctgaa aagatccatt c 161

<210> 114
 <211> 175
 <212> DNA
 <213> *Aquifex aeolicus*

<400> 114
 ctcgtaagag agctaaaggc tcttgggcta aacgttaagt gtctgaatgg tgaagagaag 60
 ccttgtgacg aggttgaagt taaagaggag gaagaaaaat gactgaaqca aqaagqgqta 120
 tcttcccttt ctcaaaaatt aaattgatgc tcgcttctcc cgaggatatt aqaag 175

<210> 115
 <211> 175
 <212> DNA
 <213> *Aquifex pyrophilus*

<400> 115
 ctcgttaggg agctcaaagg tctcagcctt aacgttaagt gtatgaacgg tgaggagaag 60
 ccttgtgacc aagttgagat taaagaggag gaagaaaaat gactcacaata ggtaggggta 120
 tctttccttt ctcaaaaatt aagcttatgc tcgcttctcc cgacgatatt aqaag 175

<210> 116
 <211> 293
 <212> DNA
 <213> *Deinococcus radiodurans*

<400> 116
 ctgggtcaagg aactccactc gctcggtctg gacgtcgagg tgctcgacca cggcgacaag 60

49

```

gcggtggaca tctttgaagg gatgalgccc aagcgclaay gcgcclycgg cactgccaac 120
ccgtcgagca ctglcaaaac glclaaagyl caaacggcca acatctttca gccgttcgac 180
ggtgagacag ttcgacgqgt tgaccaacaa aagagcctcc attccacagg agcctgaatg 240
aaagacttca acaaaagtccg catcgccatc gccagcccgg agaagatccg cga 293

```

<210> 117
 <211> 177
 <212> DNA
 <213> *Thermus aquaticus*

```

<400> 117
ctggtgaagg agcttcaggc cctggccctg qacgtqcaqa ccctggacqa gaaqgacaac 60
cccgtggaca tttttgaagg cctggccctc aagaggtgag cccttttctg gaggaaagat 120
gaaaaaqqaa qtcgcqaagg tccgcacgc cctggccctc cccgagaaga tccgctc 177

```

<210> 118
 <211> 174
 <212> DNA
 <213> *Thermotoga maritima*

```

<400> 118
ctcatcaaag aactcagagg tctcgcgctc gatgtgagac tctacgatga gaacggtaac 60
gagatagata tcgacaagta ctgattggga ggttggtaga atgccaatgt cctctttcaa 120
gaggaaagata aaggcaattc agataaagat agcctctccg gaagtqataa gaag 174

```

<210> 119
 <211> 324
 <212> DNA
 <213> *Streptomyces coelicolor*

```

<400> 119
ctcatcaagg agatgcagtc cctgtgcctc aacgtggagg tgctgtcctc ggacggcatg 60
tccatcgaga tgcgtgacac cgacgaggac gtcttccgag cagcggagga gctcggcatc 120
gacctgtcgc ggcgcgagcc gagcagcgtc gaagagggtc gacgggagtc aggcggggcc 180
tgtctccac aggcgccgcc gatcccgca ccccgcttc agaccacaga cttacaacct 240
tgagagggat tgacgcatag tgctcgacgt caacttcttc gacgagctcc ggatcgggtc 300
ggccaccgct gacgacatcc gtca 324

```

<210> 120
 <211> 281
 <212> DNA
 <213> *Mycobacterium leprae*

```

<400> 120
ctgctcaaag agttacagtc gctgtgctc aacgtcgagg tgctgtcgtc cgacgggtgcg 60
gcgatcgagt tgcgcgaagg tgaggatgag gacctcgagc gggctgcggc caacctcggt 120
atcaacttgt cccgcaacga atcggcgctc atagaagatc tggcttagcg aacttggcat 180
tatcgtcact aaaccgcga ggggaaagg agttacgtgc tagacgtcaa cttcttcgat 240
gaactccgca ttggcctggc taccgcgag gacattcgtc a 281

```

<210> 121
 <211> 277
 <212> DNA
 <213> *Mycobacterium tuberculosis*

```

<400> 121
ctgctcaaag aactgcagtc gctgtgcctc aacgtcgagg tgctatcgag tgacgggtgcg 60
gcgatcgaa tgcgcgaagg tgaggacgag gacctggagc gggccgcggc caacctggga 120

```

50

```

atcaatctgt cccgcaacga atccgcaagt gtcgaggatc ttgcgtaaag ctgtcgcaaa 180
attactaaac ccgttagggg aaagggagtt acglgcgcga cglcaacellc tlcgatgaac 240
lccgcatcgg tcttgctacc gcggaggaca tcaggca 277

```

```

<210> 122
<211> 277
<212> DNA
<213> Mycobacterium tuberculosis

```

```

<400> 122
ctgctcaaag aactgcagtc gctgtgcctc aacgtcgagg tgctatcgag tgacgggtgcg 60
gcgatcgaac tgcgcgaagg tgaggacgag gacctggagc gggccgcggc caacctggga 120
atcaatctgt cccgcaacga atccgcaagt gtcgaagatc ttgcgtaaag ctgtcgcaaa 180
attactaaac ccgttagggg aaagggagtt acgtgctcga cgtcaacttc ttcgatgaac 240
tccgcatcgg tcttgctacc gcggaggaca tcaggca 277

```

```

<210> 123
<211> 192
<212> DNA
<213> Porphyromonas cangingivalis

```

```

<400> 123
ctcctacacg agctcaaagg tcttggtcta agcttctgta tggagtaata ggcgaggata 60
tgtgattata gttttttcct catcagaata aatctcccat tatatagtta tggcattcaa 120
aagagataca aagataaagg ccaacttcac ccgtattaag atcggtatcg cttctcccca 180
aggggtattg ga 192

```

```

<210> 124
<211> 257
<212> DNA
<213> Mycoplasma genitalium

```

```

<400> 124
ttgacaaaag aattacaggg cttggcttta tctgtttcat ttatctatga tgacaacacc 60
caacaagact ccaataatgt ttccatcttg caaagtgatg gggaacaaga tgaatttttc 120
aatgattttg aatttgacac tgagggttat tagaaattaa caatgacaac aacaagacgt 180
aataaaaaga ataacaagct ttataaaaac attaaaagcaa ttaactttc catcgcttcc 240
aatgacacca ttttgaa 257

```

```

<210> 125
<211> 245
<212> DNA
<213> Mycoplasma pneumoniae

```

```

<400> 125
ttaacgaagg aactacagg gttagcgttg agtgtgtcct ttatttacga tgacaacacc 60
caacaagatt ccaacaacgt ttcaattctc caagctgatg gagaacagga cgatctcttt 120
aatgactttg aatttgacac ggagggttat taattaatga caaagcgtaa taaaaagaac 180
aacaagctgt acaagaacat taaggcaatt aagcttttga ttgcttccaa cgacacgac 240
ctaaa 245

```

```

<210> 126
<211> 305
<212> DNA
<213> Ureaplasma urealyticum

```

```

<400> 126
ttaacaaaac aaatgcaagg tttagggtta tgtattaccg ttgaaacaaa agatgatcgt 60

```

51

```

atggttagata ttaatgaata tacactaat caaactcgtt taaalaalga cgalgalgag 120
gttatttttag atgaaaatct aaaaagagtc aalgattcta atgaagaaat atttaataca 180
aactttaata ataatgacta lcatgatgaa gagaacttct aaataataga aaggtaaaat 240
aatatgaglc aaaaagggat taaatcatta acgatttcca ttgcttcacc tgaacaaatt 300
laaa 305

```

<210> 127

<211> 244

<212> DNA

<213> *Mycoplasma pulmonis*

<400> 127

```

ttagcctatg aattaagagq qctaqaatc aaacttcaaa ttcataaaaa agaagaagaa 60
aaacaagaac taccagaacca agaatatgaa agtttaaatc ttgatcaaga gctaaaaaca 120
qcttctqaaa atgttagtga aagttagtct taattatgcc aaaaactaga aaatattcaa 180
cagttgatga agaaaagatt ttaaaagtta gcttatctct tgcaactaaa gaagatgttt 240
taga 244

```

<210> 128

<211> 202

<212> DNA

<213> *Plasmodium falciparum*

<400> 128

```

attttaaaag agttacaaag tttagctatt aatatagaag ctttttgtat atttaatgat 60
acaaataatt tattagaaaa tttacctatt aatataattt attaataatg ataatacata 120
ataatataaa ttttatagga ttaaaattaa atatattaaa tcctaaacaa ataataaaat 180
ggtcttcact attttataaa aa 202

```

<210> 129

<211> 136

<212> DNA

<213> *Archaeoglobus fulgidus*

<400> 129

```

cttctggatg agctgaagtc aatgatgatc gctccgagaa taattctcgg agataaggca 60
tgaggtgaaa tgagatggtg ccgaagagga tttcagccat taaatttgag gttctctccc 120
cccaagagat aagaag 136

```

<210> 130

<211> 169

<212> DNA

<213> *Methanothermobacter thermoautotrophicus*

<400> 130

```

ttacttctcg aactcaagag tctctgtatc ttcccgaac tcatactgga agataaggca 60
tgataatgga ttttaaggga taacaaaaag gagagaatac cttgagagga attttaaaga 120
aaatttccca gataaacttt ggcctcatgt ccccgagga tatcaggaa 169

```

<210> 131

<211> 136

<212> DNA

<213> *Halobacterium sp*

<400> 131

```

ctactcgacg agatgaaggc gctcggcatc gcgcgcgcgc tggaactgga ggaggcagtg 60
taatgagtg caggacaaggc cccaaggaaa tcggcgaaat cagcttcggg ctgatggacc 120
cagaggagta ccgcga 136

```

52

<210> 132
 <211> 127
 <212> DNA
 <213> *Thermoplasma volcanium*

<400> 132
 atgagggatg agctgatatc tctcggtggt gttatgcgtc ttatgttggg tgatatgaaa 60
 tgatgggaat tcttaaaaga atttcaagta ttaaatttgc gcttctttct ccagacgaga 120
 taagaaa 127

<210> 133
 <211> 127
 <212> DNA
 <213> *Thermoplasma acidophilum*

<400> 133
 atgagggatg agctgatctc tctcggtggt gttatgaggt taatgctcgg tgatatgaaa 60
 tgatgggaat atcaaaaaga atttcatcaa taaaatttgc ccttctttct ccgcatgaga 120
 taagaaa 127

<210> 134
 <211> 141
 <212> DNA
 <213> *Sulfolobus acidocaldarius*

<400> 134
 ttaattcaag aacttatgag tatggtaatt tcaccgagat taatttttagg tgaaaaagta 60
 aacttaggag gtgcttcaaa tgagtgaagaa gattatcagg ggcgtaaaat ttggtgtatt 120
 atcacctaatt gaaataaggc a 141

<210> 135
 <211> 145
 <212> DNA
 <213> *Sulfolobus solfataricus*

<400> 135
 ttaattcaag aactaatgag tatgattatc tcacctaggt tagttttgga ggataaaagt 60
 ggattaagtq gaqgttaagg gaaatgagtg aaaagaatat aaaaggaata aagtttgga 120
 tactttctcc tgacgaaata agaaa 145

<210> 136
 <211> 134
 <212> DNA
 <213> *Pyrococcus abyssi*

<400> 136
 ctcttggaatg agcttaaggc catgggttatt aggccaaagt taaacctcac ggagaggggtg 60
 tgagctatgc aatccgttaa gaagggtatc ggtagtatag agtttggaat tctctcccct 120
 caagaaatta gaaa 134

<210> 137
 <211> 134
 <212> DNA
 <213> *Pyrococcus horikoshii*

<400> 137

53

```

cttctggatg agcttaaggc talgylgall agacctaagt taaacctcac ggagaggggtg      60
tgagccatgc actcagllaa gaaggttata ggtagtattg aatttggaat actttcccoct    120
caagaaatta ggaa                                     134

```

```

<210> 138
<211> 224
<212> DNA
<213> Aeropyrum pernix

```

```

<400> 138
ctgclgcagg agataaccag tatgatgata aagccggaac tcaaggtagc cgacaagata      60
tccgtcatca gaaaagtcgt cggcgactat acatgattac cccattttta ttctcggatt    120
tcgggggtgt tgggtcctat gtctctaagg ctctcggagt tccgcgagac aaaccttcta    180
gataaagatac tctttggcgt cttaagcccc catgagataa ggca                      224

```

```

<210> 139
<211> 26
<212> DNA
<213> Artificial sequence

```

```

<220>
<223> Primer

```

```

<220>
<221> misc_feature
<222> (6)..(7)
<223> n = a, g, c or t/u

```

```

<220>
<221> misc_feature
<222> (9)
<223> n = a, g, c or t/u

```

```

<220>
<221> misc_feature
<222> (12)
<223> n = a, g, c or t/u

```

```

<220>
<221> misc_feature
<222> (18)
<223> n = a, g, c or t/u

```

```

<220>
<221> misc_feature
<222> (21)
<223> n = a, g, c or t/u

```

```

<220>
<221> misc_feature
<222> (24)
<223> n = a, g, c or t/u<400> 139
marccnntng gngaymgngt natngt

```

26

```

<210> 140
<211> 186
<212> DNA
<213> Past urella multocida

```

```

<400> 140

```

54

```

gaaaaaattg atggcgaaga aglglllaull alllelgaaa acgalalulll agccallgll    60
gaataatttt lalcaacaac acaaaatcgt tatttctata aataaacaaa cttaaaatag    120
caatttgcac aacaagattc gaaatgagag gaagataaaa aatggcagca aaagacgtaa    180
aatttg                                           186

```

<210> 141
 <211> 113
 <212> DNA
 <213> *Haemophilus influenzae*

```

<400> 141
gaaaaaatcg atgggtgaaga aqtqtttaatc atttctgaaa acqacatcct agcaattqta    60
gaalaattat taaataaqqg aaaagaaaat ggcagcaaaa gacgtaaaat ttg          113

```

<210> 142
 <211> 113
 <212> DNA
 <213> *Haemophilus ducreyi*

```

<400> 142
gaaaaaattg atggcgaaga aattttaatt ctttcagaga atgacattct tgcaattgta    60
gaataatcga aqaataaggg ataataaaaat ggcaataaaa gacgttaaat ttg          113

```

<210> 143
 <211> 137
 <212> DNA
 <213> *Buchnera aphidicola*

```

<400> 143
gaaaaaattg ataacgaaga attattaatt ctaactgaaa gcgacatttt agcaattggt    60
gaatagtata ccacatgcta tatcattgaa aattgattta aggggatgtc aaatggccgc    120
taaagatgta aaatttg                                           137

```

<210> 144
 <211> 139
 <212> DNA
 <213> *Myzus persica*

```

<400> 144
gaaaaaatta atactgaaga gttattactt ttaactgaaa gtgacatttt agcaattggt    60
gaataatgaa ctatatgcta tatccattta aaaattttatt taagggaatg tcaaatggcc    120
gctaaagatg taaaatttg                                           139

```

<210> 145
 <211> 144
 <212> DNA
 <213> *Vibrio cholerae*

```

<400> 145
gaaaagatcg atggcaaaga agtgctgacg ttggctgaac atgacatttt ggcaatcggt    60
gaataattga ttctgaatcc caacgaaatc aataactgaa tttagaaagg aaatgaaaaa    120
tggctgctaa agacgtacgt ttg                                           144

```

<210> 146
 <211> 137
 <212> DNA

55

<213> Escherichia coli

<400> 146

```

gagaagatcg acaatgaaga agtgttgatc atgtccgaaa gcgacattct ggcaattggt    60
gaagcgtaat cctcgacaga cactgaacat acgaatttaa ggaataaaga taatggcagc    120
taaagacgta aaattcg                                     137

```

<210> 147

<211> 137

<212> DNA

<213> Escherichia coli

<400> 147

```

gagaagatcg acaatgaaga agtgttgatc atgtccgaaa gcgacattct ggcaattggt    60
gaagcgtaat cctcgacaga cactgaacat acgaatttaa ggaataaaga taatggcagc    120
taaagacgta aaattcg                                     137

```

<210> 148

<211> 137

<212> DNA

<213> Escherichia coli

<400> 148

```

gagaagatcg acaatgaaga agtgttgatc atgtccgaaa gcgacattct ggcaattggt    60
gaagcgtaat cctcgacaga cactgaacat acgaatttaa ggaataaaga taatggcagc    120
taaagacgta aaattcg                                     137

```

<210> 149

<211> 142

<212> DNA

<213> Pseudomonas putida

<400> 149

```

gtgaaagtcg atggcgaga cctgctggta atggccgaga acgagattct cgccgttatc    60
gaaggctgat ttccccgact tcccgttatt ccaaagcatt tcaaggatta aacgatcatg    120
gctgctaaag acgtaaaatt cg                                     142

```

<210> 150

<211> 144

<212> DNA

<213> Pseudomonas aeruginosa

<400> 150

```

atcaaggctcg atggcgagga actgctgggtg atgggcgagt ccgaaatcct cgccgtcctg    60
gaagactgat cggctctacc actccgtttt caccgaattc gatttagagg aaagagaaca    120
tggctgccaa agaagttaag ttcg                                     144

```

<210> 151

<211> 186

<212> DNA

<213> Neisseria meningitidis

<400> 151

```

gtaaaagccg acggcgaga gctgttggtg atgcgcgaag aagatatttt cggcacgttt    60
gaaaaataaa tacggacacg atgccgtctg aaacggcaaa ccgccttcag acggcataaa    120
cggttttatc agacagtttt aatgattttt ggagaattg aatggcagca aaagacgtac    180
aattcg                                     186

```

56

<210> 152
 <211> 186
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 152
 gtaaaagccg acggcggaaga gctgttggtg atgcgcgaag aagatatttt cggcatcggt 60
 gaaaaataaa tacggacacg atgccgtctg aaacggcaaa ccgccttcag acggcataaa 120
 cggttttatc agacaqtttt aatgattttt ggagaattga aatggcagca aaagacgtac 180
 agttcg 186

<210> 153
 <211> 185
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<400> 153
 gtaaaagccg acggcggaaga gctgttggtg atgcgcgaag aagatatttt cggcatcggt 60
 gaaaaataaa tacggacacg atgccgtctg aaacggcaaa ccgccttcag acggcataaa 120
 cggttttatc agacagtttt aagatttttg gagaattgaa atggcagcaa aagacgtaca 180
 attcg 185

<210> 154
 <211> 201
 <212> DNA
 <213> *Xylella fastidiosa*

<400> 154
 tacaaggctg aaggcgctga atacaaagta ttacgcgagg acgacatcct ggcgatcatc 60
 ggttgattaa gccaaagccc aaactcgtga atgcatccga catatcacgc caacagcggg 120
 cacattgttc catacatcac taatgttctc atcgcgaatc ttggagtaaa aacataatgg 180
 ctgccaaaga aattattttc a 201

<210> 155
 <211> 224
 <212> DNA
 <213> *Streptomyces coelicolor*

<400> 155
 gtgaagtaca acggcgagga gtacctcgtc ctctcggccc ggcacgtgct cgcgatcgtc 60
 gagaagtaga agtagtactt cgcttcaccg aagcaccttg ctttccagct gcgcccctgg 120
 ctcccgcgac cataaaaagc cgggcgtcgg gggcgagtt gccgtataac cccaagattt 180
 ccggaagagg gctcacgctc ccatggcgaa gatcctgaag ttcg 224

<210> 156
 <211> 185
 <212> DNA
 <213> *Mycobacterium tuberculosis*

<400> 156
 alcaagtaca acggcgagga atacctgacg ctgtcggcac ggcacgtgct ggccgtcggt 60
 tccaagtagt agagcgtggt ccgccccggc gatccccgtg ctcaccacgg gtgatttccg 120
 gggcggcatg cgttagcgga ctagccctgc gtagaggagc ctgatgagca agctgatcga 180
 atacg 185

57

<210> 157
 <211> 185
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 157
 atcaagtaca acggcgagga atacctgac ctgtcggcac gcgacgtgct ggccgtcggt 60
 tccaagtagt agagcgtggt cggccccggc gatccccgtg ctcaccacgg gtgatttcgg 120
 gggcggcatt cgttagcgga ctgcccctgc ytagaggagc ctgatgagca agclgatcga 180
 atacg 185

<210> 158
 <211> 169
 <212> DNA
 <213> Mycobacterium leprae

<400> 158
 atcaagtaca atggcgagga atacctgac ctgtcggcac gtgacgtgct ggctgtcgta 60
 tccaagtaac gaaccgtggt cggccccggc gatccccgtg cttaccacgg ggtgatttcg 120
 gggcggcatt gcgttttaaag gagcctgatg agcaagctga ttgagtacg 169

<210> 159
 <211> 103
 <212> DNA
 <213> Thermus aquaticus

<400> 159
 attgagattg caccgcgaag gacgtacgtg atcctcaccg agcgcgacct gcttgagggtc 60
 ctgcagtaaa ggaggtgaac catggcgaag atcctggtgt ttg 103

<210> 160
 <211> 100
 <212> DNA
 <213> Thermus thermophilus

<400> 160
 attgagattg acggcgagga gtacgtgac ctctccgagc gcgacctgct tgcggtcctg 60
 cagtaaagga ggtgaacctat ggcgaagatc ctggtgtttg 100

<210> 161
 <211> 100
 <212> DNA
 <213> Thermus thermophilus

<400> 161
 attgagattg acggcgagga gtacgtgac ctctccgagc gcgacctgct tgcggtcctg 60
 cagtaaagga ggtgaactat ggcgaagatc ctggtgtttg 100

<210> 162
 <211> 162
 <212> DNA
 <213> Deinococcus radiodurans

<400> 162
 gtcagcctcg aaggcaagaa ctacagcctg ctgagcgagc gcgacctgct cgccattgtc 60
 gagtaaggct ccgagtcagg ttctgagcct gttcgtttcc tgtttttctt cctcatttca 120
 cttttcaagg agcaatcaca atggctaaac agctcgtggt tg 162

58

<210> 163
 <211> 121
 <212> DNA
 <213> *Porphyromonas gingivalis*

<400> 163
 atagagctgg agggcgaaaa atatatcatc atgcgcacaa acgatgtctt ggcaatcatc 60
 taattctcag agacaataac ctacaataaa aaataaagac tatggcaaaa gaaatcaaat 120
 t 121

<210> 164
 <211> 134
 <212> DNA
 <213> *Bacillus subtilis*

<400> 164
 gtgaaatcag aagggtactga atacttaatc ttacgtgaaa gcgacatttt agctgttattc 60
 ggctaattct taaataaaca atacttaaaa catttgagga ggtcttgtaa acatggcaaaa 120
 agaaattaag tttt 134

<210> 165
 <211> 180
 <212> DNA
 <213> *Bacillus halodurans*

<400> 165
 gtaaaatattg atggtaaaga gtalllaalc ctctcgtgaaa gcgatattct cgcgattatc 60
 ggtaattttt acglagggll atccctacat acatgtaaga cgagagggtt ttgtctattc 120
 ctcttttgta aaataccatt caggagggtg agaataacat ggcaaaaagat attaagttta 180

<210> 166
 <211> 121
 <212> DNA
 <213> *Lactobacillus zeae*

<400> 166
 gtgaagtatg aagggtcaaga ctaccttgta ttgcattgaaa aagacatcat ggcaattgag 60
 taactaaata atcgatcaat tttgagggtg ataaaaacaa tggcaaaaaga aattaaattc 120
 t 121

<210> 167
 <211> 142
 <212> DNA
 <213> *Clostridium perfringens*

<400> 167
 gttaagtctg agggggaaga atatactatt ttaagacaag acgatatact agcaatagtt 60
 gaatagtttt aaaatataag tgatttagat attcataata tatttgggag gtaaatattt 120
 atggctaaaa cattattatt cg 142

<210> 168
 <211> 120
 <212> DNA
 <213> *Clostridium difficile*

<400> 168
 gttaagatag aaggacaaga atacacaata ctaagacaga gtgatgtatt agctgttatt 60
 gaataaatat agaataaatt tattaggagg ggtttaaaat ggctaaagaa attaaatttt 120

59

<210> 169
 <211> 129
 <212> DNA
 <213> *Clostridium acetobutylicum*

<400> 169
 ataaaagttg acaatgaaga attgttaatt ttaagacagg acgatatttt aggaattgta 60
 gaagaataag ctatcaattt tgttaataat tcagggaggg attctaaatg gcaaagcaaa 120
 tallatacg 129

<210> 170
 <211> 141
 <212> DNA
 <213> *Lactobacillus helveticus*

<400> 170
 gttgaatagc aaggtgaaaa gtacttagtc cttcatgaaa aagacatttt agcaattgca 60
 aaataattga cgaattttt agaaattaaa atacgagatt aaggaggcat agataatcta 120
 tggcaaaaga tattaaattc t 141

<210> 171
 <211> 118
 <212> DNA
 <213> *Lactobacillus johnsonii*

<400> 171
 ttgaagtacg aaggcgaaaa gtacttagtt cttcgtgaaa gcgacttatt agctgtcgtt 60
 aagtaataaa atttgaaata aaaggtggca talaalalgg claaagagal laaalllt 118

<210> 172
 <211> 143
 <212> DNA
 <213> *Staphylococcus epidermis*

<400> 172
 gtaaaacgtg gcgcccacac atatttaatt ttaaatgaag aagatatatt agctattata 60
 gaataaagag cgaattttta atattaatta aatgatttaa taagtggagg ttgtttagac 120
 tatggcaaaa gatcttaaat tct 143

<210> 173
 <211> 163
 <212> DNA
 <213> *Staphylococcus aureus*

<400> 173
 gttaaaacgag ataataaaac atatctagta ttaaatgaag aagatatatt agcggtaatt 60
 gaataatata aaattaaatt catagataaa ttgtaaagaa cgaaaatgaa atatgactaa 120
 acaaatggag gttttatcatt tatggtttaa caattgaaat tct 163

<210> 174
 <211> 106
 <212> DNA
 <213> *Streptococcus pneumoniae*

<400> 174
 gtcaaagatg gcgatgaaaa gtacatcatc gtaggcgaag ctaacatttt ggcaatcatt 60
 gaggaataga aggagaaagt aagtatgtca aaagaaatta aatttt 106

60

<210> 175
 <211> 175
 <212> DNA
 <213> *Lactococcus lactis*

<400> 175
 gtaaaaatgg atggtgaaga attcttgatt ctcaaagatt cagaccttct tgcaattgta 60
 gagtaaaatt ataaaagcaa tcattttttt gggtgtcttt tgtctatctt aaaatctata 120
 aaattaaaaa tatattctta aaaaggagct aaaatgtcaa aagatattaa atttt 175

<210> 176
 <211> 111
 <212> DNA
 <213> *Rickettsia prowasekii*

<400> 176
 attgaaataa aaggagaaaa attaatcggt atgaaagaaa gcgatgtatt tggattatt 60
 aattaattat ttttaggaga aaaaatatga caacgaaact tattaaacac g 111

<210> 177
 <211> 129
 <212> DNA
 <213> *Chlamydia muridarum*

<400> 177
 ctactgtcg aaggtgaaga atatgtcatc gttcaaata gcaagttat agcagtcctg 60
 caataaaaac taagagagtg aagtaagatt taaggagcgc atcgatggc gctaaaaata 120
 llaaalala 129

<210> 178
 <211> 128
 <212> DNA
 <213> *Chlamydia trachomatis*

<400> 178
 ctactgtcg aaggtgaaga gtacgtcatc gttcaaata gcaagttat cgcagttctg 60
 caataaaaac taagagagtg aagaagattt aaggagcgc tcaatggctg ctaaaaacat 120
 taaatata 128

<210> 179
 <211> 132
 <212> DNA
 <213> *Chlamydophila pneumoniae*

<400> 179
 atcacaatcg atgacgaaga gtatgtcatt ctacagtcca gtgaaatcat ggccgtccta 60
 aaataaaaata ctagtgtgca gattatagaa agttaaggag aacaacgatg gcagcgaaaa 120
 atattaaata ta 132

<210> 180
 <211> 132
 <212> DNA
 <213> *Chlamydophila pneumoniae*

<400> 180
 atcacaatcg atgacgaaga gtatgtcatt ctacagtcca gtgaaatcat ggccgtccta 60
 aaataaaaata ctagtgtgca gattatagaa agttaaggag aacaacgatg gcagcgaaaa 120

61

atattaaata La 132

<210> 181
<211> 132
<212> DNA
<213> Chlamydomphila pneumoniae

<400> 181
atcacaatcg atgacgaaga gtatgtcatt ctacagtcga gtgaaatcat ggccgtccta 60
aaataaaata ctagtgttga gattatagaa agttaaggag aacaacgatg gcagcgaaaa 120
atattaaata ta 132

<210> 182
<211> 141
<212> DNA
<213> Chlamydomphila caviae

<400> 182
cttaccgttg atggtgagga gtacgtcatt gttcaggaaa gcgaagtatt ggcagttctc 60
aagtaagaga aatcattatt tatagattgc aaaaagttaa ggagcacaaa aaaacaatgg 120
cagcaaaaaa tattaatat a 141

<210> 183
<211> 160
<212> DNA
<213> Helicobacter pylori

<400> 183
ctagaagaca ttctaggcat tgtgggctca ggctcttggt gtcatacagg taatcatgac 60
cataaacatg ctaaagagca tgaagcttgc tgtcatgac acaaaaaaca ctaaaaacat 120
tattattaag gatataaat ggcaaaaga atcaaatttt 160

<210> 184
<211> 160
<212> DNA
<213> Helicobacter pylori

<400> 184
ctagaagaca ttctaggat tgtgggctca ggctcttgct gtcatacagg taatcatgac 60
cataaacatg ctaaagagca tgaagcttgc tgtcatgac acaaaaaaca ctaaaaacat 120
tattattaag gatataaat ggcaaaaga atcaaatttt 160

<210> 185
<211> 72
<212> DNA
<213> Campylobacter jejuni

<400> 185
ttagatgata tcttaggaat tttaaaataa tttataaaaa aggataaaaa atggcaaaag 60
aaattatttt tt 72

<210> 186
<211> 136
<212> DNA
<213> Clostridium thermocellum

<400> 186
gtaaaatttg acggacagga atatacgatc ttaagacaaa acgatatttt ggcggtagta 60
gagtaattat attaccaact tcaatacaaa aagtatccta aggaggtaa tcatatggca 120

62

aagcaaataa aatttg

136

<210> 187

<211> 127

<212> DNA

<213> Mycoplasma genitalium

<400> 187

tttgagaatg agggaaacaa gtacaaaatt attggatttg aggatgtact tgcctttgaa 60
aaaccagaaa gtggtaagca aagaaaaaga taaaattaaa caattatggc aaaggaatta 120
atcctttg 127

<210> 188

<211> 138

<212> DNA

<213> Mycoplasma pneumoniae

<400> 188

tttgaagagg aaggtaacaa gtacaagatt atttccttgg aagatgtcct tgcttttgaa 60
aagcatggta atacaaaaac tactactgta aagaaaggag ctaagaaaaa atagttatgg 120
caaaggaatt agtatttg 138

<210> 189

<211> 120

<212> DNA

<213> Aquifex aeolicus

<400> 189

gtagagattg aaggaaagat ttacctcgtt atgtctgaag acgaagtttt agctgttggt 60
gaagattatt caagcttaat aggaggtgag gtgagatggc agcaaaggca attatctaca 120